

XXII.—*Additions to the Invertebrate Fauna of St. Andrews Bay.* By ERNEST W. L. HOLT, Assistant Naturalist to the Royal Dublin Society's Fishery Survey, and late of the St. Andrews Marine Laboratory.

[Plate XI.]

PROFESSOR M^cINTOSH, to whom I am indebted for the use of the Marine Laboratory during a stay of eighteen months at St. Andrews, has asked me to furnish a brief record of such forms, new to the local fauna, as came under my observation during that period. They were obtained for the most part by the use of the tow-nets or from the lines of the St. Andrews fishermen, whose kindness in allowing us to overhaul their gear and in bringing to the laboratory specimens which had excited their own curiosity cannot be too highly appreciated.

INFUSORIA.

On April 1, 1890, a specimen of *Caligus rapax* brought up in the bottom tow-net was noticed to be beset posteriorly by a number of foreign organisms which on close examination proved to be Acinetid Infusorians apparently belonging to the genus *Hemiophrya*. Figure 1 (Pl. XI.) represents the host and its epizotic parasites as they appeared on the following day. On the day of capture most of the Infusorians were covered in the apical region with gemmules, which had all been liberated when the drawing was made.

Hemiophrya is characterized by the possession of tentacles of two orders, of which the suctorial ones appear to be usually very minute. In the specimens before us no suctorial tentacles were discernible, and, judging from Saville Kent's figures ('Manual of Infusoria,' pl. xvii.), this is occasionally the case with other species of this genus.

Sir John Dalyell, in 'The Powers of the Creator displayed in the Creation' (vol. i. p. 249, pl. lxvi. fig. 10), mentions and figures "a minute zoophyte" from the dorsal region of a *Caligus*. I think that a glance at his figure leaves no doubt but that he was misled, as I was at first myself, by the resemblance of the form before us to a Hydroid. As our form does not agree exactly with any other species of which I have been able to find a description, I would propose to name it after its first observer.

Hemiophrya Dalyelli, sp. n. (Pl. XI. figs. 1-4.)

Pedicle or tube hyaline, finely granular, not striated,

slightly curved, about six times as long as body; at distal end about half the greatest width of body when fully extended (as in fig. 2), tapering gradually towards the base.

Body yellowish brown by transmitted light, subject to considerable variations of shape (see figs. 2, 3, and 4). Prehensile tentacles about as long as body, confined to apical region, and showing a spiral structure internally under a high power.

Length of tube in largest specimens about 1 millim.

Hab. On *Caligus rapax*.

POLYCHÆTA.

Polygordius, sp.

The larvæ of a species of *Polygordius* occurred in the surface-nets on August 19 and October 23 and 25, 1890. Several were observed to undergo their final metamorphosis after a few days' life in the laboratory. Its appearance in these waters is somewhat surprising.

NEMERTEA.

A *Pilidium* larva was taken at the surface on October 13, 1890. It measured .71 millim. in greatest length, the height without flagellum being about the same. The flagellum consisted of a bunch of fine vibratile filaments, which usually adhered so closely together as to have the appearance of a single tapering appendage. The ventral margins in life showed a beautiful arrangement of reddish-brown pigment at the bases of the cilia. The prostomial disks were a pale yellow colour, and the stomach was filled with a brownish mass interspersed with black dots.

Pl. XI. figs. 5 and 6 represent the larva in lateral and anterior views.

Professor McIntosh informs me that no Nemertean known to undergo a *Pilidium* stage has been recorded from the adjacent waters.

HYDROIDA.

Euphysa aurata (Forbes), the gonozooid of *Corymorpha nana* (Hincks), was taken at the surface in the beginning of August 1890. A species of *Corymorpha* is known to inhabit the bay, but recent attempts to dredge it have not proved successful. This gonozooid does not seem to have been met with here before.

Gonozooids belonging to a species of *Hybocodon* were obtained in considerable numbers in the bottom-nets in April and May 1890. Their occurrence suggests the presence of a second species of *Corymorpha* in the bay.

SIPHONOPHORA.

Two examples of a form allied to *Agalmopsis*, but apparently undescribed, were taken in the bottom-net in May 1890 in company with *Hybocodon*. I have handed over the specimens of both these forms, together with such notes and drawings as I made of them, to the Rev. A. D. Sloan, M.A., B.Sc., who is making a careful investigation of them*.

GASTROPODA.

Pleurophyllidia Læveni, Bergh.

Specimens of this rare British mollusk were obtained for the first time from the haddock-lines from the mouth of the bay in the autumn of 1889 and in April 1890.

Idalia aspersa (A. & H.).

On examining a large *Molgula arenosa* brought up by the haddock-lines from the sandy part of the bay a specimen of this rare mollusk was found to have effected a lodgment inside the test, which was somewhat torn.

Tritonia Hombergii (Cuv.).

A perfectly white specimen was brought in on the haddock-lines in the spring of 1890. The mollusk is not rare in the neighbourhood of the Bell Rock.

ENTEROPNEUSTA.

A few *Tornaria* larvæ were taken at the surface on the 6th and 7th August, 1890. They appeared to be identical with those described by Bourne from Plymouth, which are the only others recorded from British waters. *Balanoglossus* is not known to occur anywhere in the neighbourhood of St. Andrews.

EXPLANATION OF PLATE XI.

Fig. 1. *Caligus rapax*, with epizoic *Hemiophrya Dalyelli*, sp. n.

Figs. 2-4. Animals and portions of the tubes of the last-named in various states of expansion; more highly magnified.

Figs. 6 & 7. Lateral and anterior views of *Pilidium* larva. *fl*, flagellum; *p.s.d.*, prostomial disk; *st.*, stomach.

* *Vide* Ann. & Mag. Nat. Hist., May 1891.